

Claims

1. Optical module with
 - a circuit carrier (10);
 - A housed semiconductor element (12) arranged on the circuit carrier (10); and
 - a lens unit (14;16, 18, 20; 21) for projecting electromagnetic radiation along an optical axis (33) onto the semiconductor element (12) ;with the housed semiconductor element (12) and the lens unit (14;16, 18, 20; 21) being embodied as two components;
characterized in that,
 - at least one spacer element (35) is arranged outside the optical axis (33) between the package (13) of the semiconductor element (12) and the lens unit (14;16, 18, 20; 21).
2. Optical module in accordance with claim 1,
characterized in that
the spacer element (35) is embodied as a foil or a washer, for example in the shape of a circular washer.
3. Optical module in accordance with claim 1 or 2,
characterized in that
the spacer element (35) is a punched part
4. Optical module in accordance with one of the claims 1 to 3,

characterized in that, the spacer element (35) is embodied as adhesive on at least one side, preferably on both sides.
5. Optical module in accordance with one of the previous claims,

characterized in that the spacer element (35) is part of a set of elements (a, b, c, ...).

6. Optical module in accordance with claim 5, characterized in that the set of elements (a, b, c, ...) comprises two or more spacer elements (35a, 35b, 35c, ...) with a uniform basic thickness and different nominal thicknesses increasing or reducing this thickness in each case.
7. Optical module in accordance with claim 5 or 6, characterized in that the set of elements (a, b, c, ...) comprises spacer elements with nominal dimension changes from ± 0.005 mm or ± 0.01 mm to ± 0.03 mm.
8. Optical module in accordance with one of the previous claims, characterized in that at least one spacer element (35) is simultaneously embodied as a diaphragm or lens hood.
9. Optical module in accordance with one of the previous claims, characterized in that the spacer element (35) is made from a plastic, for example from a thermoplastic material.
10. Optical system with an optical module in accordance with one of the previous claims.